



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND
INTERFERENCES

In re Application of

FRANK CORNELIS PENNING
ET AL.

METHOD OF
MANUFACTURING A
MAGNETIC HEAD HAVING A
PLANAR COIL

Serial No. 09/923,611

Filed: August 7, 2001

Group Art Unit: 2652
Examiner TIANJIE CHEN

I hereby certify that this correspondence
is being deposited today with the
United States Postal Services as first
class mail in an envelope addressed to:
Mail Stop Appeal Brief-Patent
Commissioner for Patents
P.O. Box 1450
Alexandria VA. 22313-1450


Name: James D. Leimbach

Registration No. 34,374

Date: September 11, 2004

RECEIVED

SEP 15 2004

Technology Center 2600

Mail Stop Appeal Brief-Patent
Honorable Commissioner of Patents and Trademarks
Alexandria VA. 22313-1450

Sir:

APPEAL BRIEF UNDER 37 C.F.R. §1.192

This is an Appeal Brief filed in support of an appeal from the final rejection of the
appealed claims contained in the Final Office Action dated March 12, 2004.

09/15/2004 BABRAHA1 00000026 09923611

01 FC:1402

330.00 OP

Serial No. 09/385.278

Introduction

This Application is before the Honorable Board of Patent Appeals and Interferences, from a final decision of the Examiner as indicated in the Advisory Action dated May 6, 2004.

Real party in interest

The real party of interest is the Assignee who is U. S. Philips Corporation, a corporation existing under the laws of the State of Delaware (hereinafter Appellant).

Related appeals and interferences

There are no related appeals or interferences to the present application that are known to appellant, the appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of the Claims

Claims 1-20 as originally filed are drawn to a method for manufacturing a magnetic head having a planar coil.

Status of the Amendments After Final

A response was filed subsequent to the final rejection to overcome the Examiner's rejection of claims 1-20 under 35 U.S.C. §102(e) and 35 U.S.C. §103(a). The Examiner in an Advisory Action dated May 6, 2004 indicated that the rejection of claims 1-20 under 35 U.S.C. §102(e) and 35 U.S.C. §103(a) stands.

Summary Description of the Invention

To the invention relates to manufacturing a magnetic head face including a magnetic coil. The magnetic head face of the invention is useful in recording and especially in magneto optical recording. The magnetic head of the invention combines optical components with a slider that has a magnetic field modulation coil integrated in the slider (see specification page 2, lines 13-17). The magnetic head of the invention provides capabilities that are necessary in a magneto-optical recording system for the coil of the magnetic head to be a planar coil that is near the plane of the air bearing surface (see specification page 2, lines 18-20). The method according to the invention provides a planar magnetic coil close to the head face with the head face forming at least part of the air bearing surface (see specification page 3, lines 3-6). The invention provides a magnetic head with a head face including a magnetic coil extending parallel to the head face by forming the magnetic coil at a first side of a first substrate, attaching a second substrate to the first side of the first substrate and removing material from the second side of a set first substrate in order to form a head face (see specification page 2, line 29-page 3, line 3).

In the method of the invention, a top layer is initially placed on the first side of the first substrate prior forming the magnetic coil on the first side of the first substrate so that once the first substrate is removed, the top player will remain thus providing a protective layer for the head face of the slider (see specification page 4, lines 5-26).

The problems to be solved by the invention, as well the advantages of the invention are described in detail in the description. Briefly stated, a magnetic coil can be defined near the air bearing surface of a slider requiring only a limited number of steps (see specification page 4, lines 1-4).

Issues on Appeal

The issues presented are whether claims 1-20 under patentable under the provisions of 35 U.S.C. §102(b) and 35 U.S.C. §103(a).

Grouping of the Claims

The claims do not stand and fall together.

Arguments

I. The rejection under 35 U.S.C. §102(b)

Claims 1-7, 10-15, and 18-20 are rejected under the provisions of 35 U.S.C. §102 (e) as being anticipated by an article of Daniel W. Chapman in IEEE Transaction on Magnetics, V.25, No. 5, pp. 3686-3688 (hereinafter *Chapman*).

A. The basis of support for the rejection under 35 U.S.C. §102(b)

The Examiner's position is that *Chapman* discloses the subject matter defined by appealed Claims 1-7, 10-15, and 18-20 for a method of manufacturing a magnetic head having a magnetic coil formed at a side of the substrate the data as illustrated in Figures 1 through 9. The Examiner's position is that Figures 1a through 1d of *Chapman* anticipates the subject matter of the appealed claims.

B. The reference

Chapman (IEEE Transaction on Magnetics, V.25, No. 5, pp. 3686-3688) teaches a process for creating a horizontal head in which the air bearing layer and head elements are deposited on a substrate wafer to which a slider body wafer it is attached (see ABSTRACT on page 3686). *Chapman* teaches that the air bearing layer and head elements are deposited on a first substrate wafer to which a slider body wafer is attached. The first substrate is then etched away to expose the air bearing surface (see Process Approach on page 3686). The process of *Chapman* teaches that a permalloy film is separated from the air bearing surface by a hard non-magnetic material. Only the permalloy pole pieces reach the air bearing surface through windows in the air bearing layer (see Process Approach on page 3686).

Chapman is useful in head design for magnetic heads in that it discloses the formation of slider body elements upon a first substrate with the eventual removal the first substrate instead of attempting to form the slider body elements in preformed trenches. It should be pointed out that *Chapman* does not pertain to magneto-optical heads that are used within

magneto-optical systems. Within magneto optical systems, forming a magnetic coil near the air bearing surface is a necessary feature. There is no disclosure, suggestion or any motivation provided by *Chapman* that would indicate to a person skilled in the art that the process taught by *Chapman* could be used to form a magnetic coil close near the air bearing surface.

Note that *Chapman* does not mention forming a magnetic coil at a side of a substrate. In fact, there is no mention of magnetic coils at all within the four corners of *Chapman*. There is a singular mention of a coil in the illustration provided by Figure 7 of *Chapman*. The appellants respectfully point out that this single illustration of a coil does not provide any indication of the type of coil shown in Figure 7. Neither does *Chapman* disclose or suggest how the coil illustrated in Figure 7 is formed.

C. The differences between the invention and the reference

Chapman (IEEE Transaction on Magnetics, V.25, No. 5, pp. 3686-3688) does not teach a method for creating a magnetic head in having a magnetic coil formed at any side of a substrate. "To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). *Chapman*, as previously discussed, teaches that a permalloy film is separated from the air bearing surface by a hard non-magnetic material with only the permalloy pole pieces reaching the air bearing surface through windows in the air bearing layer. There is no disclosure or suggestion for forming a magnetic coil within *Chapman*, much less a teaching that can be considered as equivalent to forming a magnetic coil near the air bearing surface.

Appealed Claim 1 to the invention defines subject matter for a method of manufacturing a magnetic head having a head face and including a magnetic coil which extends parallel to the head face (see specification page 6, lines 5-22). As previously discussed, *Chapman* provides no teaching for forming a magnetic coil is at a side of a substrate. Appealed Claim 1 further defines subject matter that the first substrate provided with the magnetic coil is adhered with its first side to a side of a second substrate, whereafter material of the first substrate is removed from a second side of the first substrate, which second side is turned away from the first side, to form the head face (see specification page 6, lines 22-33). As previously discussed,

Chapman does not disclose, mention or otherwise suggest forming a magnetic coil anywhere within the four corners of *Chapman*.

Appealed Claim 2 to the invention defines the subject matter of appealed Claim 1 and further defines subject matter for the first substrate to be of silicon provided with a top layer of an insulating material is used as the first substrate, the top layer being adjacent to the first side. The Final Office Action asserts that *Chapman* discloses this under the section on Experimental Results on page 3687. The appellants respectfully assert out that there is no teaching or disclosure for a top layer of an insulating material the section on Experimental Results on page 3687.

Appealed Claim 3 defines the subject matter of Claim 2 and additionally defines subject matter for forming of a layer of a metal on the first substrate, with at least one further step involving the forming of a layer of a non-conducting material and the forming of a further layer of a metal and the forming of interconnections between two neighboring layers of metal is performed to create the magnetic coil. As previously discussed, there is no disclosure or teaching in any way, manner or form within the four corner of *Chapman* for forming a magnetic coil. The appellants would like to draw attention to the rejection to appealed Claim 3 in the Final Office Action that makes reference to figures with added numerals. The appellants, respectfully, point out that this reference to the figures contained in the Final Office Action is not found with *Chapman*,

Appealed Claim 4 defines the subject matter of Claim 1 and further defines subject mater for a glass material to be used as the second substrate. The Final Office Action makes reference to the Experimental Results on page 3687. The appellants respectfully assert out that there is no teaching or disclosure for a glass material in the section on Experimental Results on page 3687 as defined by appealed claim 4.

Appealed Claim 5 defines subject matter for manufacturing a slider having an air bearing surface and including a planar magnetic coil which extends parallel to the air bearing surface (see specification page 6, lines 5-22). As previously discussed, *Chapman* provides no teaching for forming a magnetic coil is at a side of a substrate. Appealed Claim 5 further defines subject matter that the first substrate provided with the magnetic coil is adhered with its first side to a side of a second substrate, whereafter material of the first substrate is removed from a second side of the first substrate, which second side is turned away from the first side, to form

the air bearing surface (see specification page 6, lines 22-33). As previously discussed, *Chapman* does not disclose, mention or otherwise suggest forming a magnetic coil anywhere within the four corners of *Chapman*.

Appealed Claim 6 defines the subject matter of Claim 5 and further defines subject matter for a silicon substrate a top layer of an insulation material is provided in order to form the first substrate, the top layer being adjacent to the first side, wherein a substrate of glass is used as the second substrate, and wherein the silicon substrate is removed after adhering of the first substrate to the second substrate. The appellants respectfully assert out that there is no teaching or disclosure for a top layer of an insulating material and no teaching or disclosure for a glass material within *Chapman*.

Appealed Claim 7 defines the subject matter of Claim 5 and further defines subject matter for forming of the magnetic coil with a metallic layer formed beside the magnetic coil, which metallic layer is at least partly removed to form a recess during structuring of the face to form the air bearing surface. As previously discussed, there is no magnetic coil within *Chapman*. The appellants respectfully point out that the rejection contained within the Final Office Action does not indicate where within *Chapman* there is disclosed or taught a metallic layer is at least partly removed to form a recess during structuring of the face to form the air bearing surface.

Appealed Claim 10 defines the subject matter of Claim 5 and further defines subject matter for a slider manufactured by the method of Claim 5. As previously discussed, there is no magnetic coil within *Chapman*. Therefore, any slider made by the process disclosed by *Chapman* will also not have a magnetic coil.

Appealed Claim 11 defines the subject matter of Claim 10 and further defines subject matter for the slider to have a top layer that forms a protective layer for the slider. The appellants respectfully point out that *Chapman* does not teach a protective layer for the slider. In fact *Chapman* provides an entire section teaching forming gaps in the section entitled Gap-making Experiment where the process of forming a write gap and read gap are detailed. The appellants respectfully assert that the formation of gaps within *Chapman* teaches away from the formation of the protective top layer defined by appealed Claim 11. .

Appealed Claim 12 defines subject matter for magnetically or magneto-optically recording using the slider defined by Claim 10. The appellants point out that magneto-optical

recording is not mentioned, discussed or otherwise taught by *Chapman*. Moreover, the magnetic coil formed near the air bearing surface required for magneto-optical recording is not mentioned, discussed or otherwise taught by *Chapman*.

Appealed Claim 13 defines subject matter for manufacturing a slider having an air bearing surface with a magnetic coil near the air bearing surface (see specification page 6, lines 5-22). As previously discussed, *Chapman* provides no teaching for forming a magnetic coil is at a side of a substrate. Appealed Claim 13 further defines subject matter for removing material from the second side of the first substrate, until features of the slider and the magnetic coil are exposed thereby forming a face. As previously discussed, *Chapman* does not disclose, mention or otherwise suggest forming a magnetic coil anywhere within the four corners of *Chapman*. Moreover, *Chapman* does not disclose, mention or otherwise suggest removing material from a second side of the first substrate until features of the slider and the magnetic coil are exposed thereby forming a face.

Appealed Claim 14 defines the subject matter of Claim 13 and further defines subject for forming on a silicon substrate a top layer of an insulation material is provided in order to form the first substrate, the top layer being adjacent to the first side, wherein a substrate of glass is used as the second substrate, and wherein the silicon substrate is removed by the step of removing after adhering of the first substrate to the second substrate. As previously discussed *Chapman* extensively discusses forming gaps which is contrary the subject matter defined by appealed Claim 14.

Appealed Claim 15 defines the subject matter of Claim 13 and further defines subject matter for forming a metallic layer beside the magnetic coil, which metallic layer is at least partly removed to form a recess during structuring of the face to form an air bearing surface. As previously discussed, there is no magnetic coil within *Chapman*. The appellants respectfully point out that the rejection contained within the Final Office Action does not indicate where within *Chapman* there is disclosed or taught a metallic layer is at least partly removed to form a recess during structuring of the face to form the air bearing surface.

Appealed Claim 18 defines subject matter for a slider manufactured by the method of Claim 14. The appellants respectfully point out that the slider defined by appealed Claim 18 requires a coil at or near the air bearing surface which is not taught or suggested by *Chapman*.

Appealed Claim 19 defines subject matter for a slider as defined in Claim 18, and further defines a top layer forms a protective layer for the slider. A previously discussed, there is no protective layer taught by *Chapman* and in fact *Chapman* teaches the formation of write and read gaps.

Appealed Claim 20 defines subject matter for a system for magnetically or magneto-optically recording information into a storage medium using including the slider as defined by Claim 19. The appellants respectfully assert that there is no disclosure, teaching or suggestion of any kind for magneto-optically recording by *Chapman*. Moreover, the system defined by appealed Claim 20 requires a slider having a magnetic coil formed at or near the air bearing surface and *Chapman* makes no mention or suggestion for a magnetic coil formed at or near the air bearing surface.

II. The rejections under 35 U.S.C. S 103(a)

Claims 8 and 16 stand rejected under the provisions of 35 U.S.C. §103 (a) as being obvious over *Chapman* (IEEE Transaction on Magnetics, V.25, No. 5, pp. 3686-3688) in view of U.S. Patent No. 6,452,742 issued to Crue et al. (hereinafter referred to as *Crue et al.*).

Claims 9 and 17 stand rejected under the provisions of 35 U.S.C. §103(a) as being unpatentable over *Chapman* in view of U.S. Patent No. 5,978,319 issued to Wang, et, al. (hereinafter referred to as *Wang et al.*).

A. The rejections under 35 U.S.C. S 103(a)

Appealed Claims 8 and 16 stand rejected under the provisions of 35 U.S.C. §103 (a) as being obvious over *Chapman* (IEEE Transaction on Magnetics, V.25, No. 5, pp. 3686-3688) in view of U.S. Patent No. 6,452,742 issued to Crue et al. (hereinafter referred to as *Crue et al.*). The examiner's position is that it would have been obvious to one of ordinary skill within the art to apply the teaching of *Crue et al.* for recessing conductor adjacent a resistance coil to the teachings *Chapman* for a thin film slider to create the subject matter defined by appealed Claims 8 and 16.

Appealed Claims 9 and 17 stand rejected under the provisions of 35 U.S.C. §103(a) as being unpatentable over *Chapman* in view of U.S. Patent No. 5,978,319 issued to Wang, et, al. (hereinafter referred to as *Wang et al.*). The examiner's position is that it would have been obvious to one of ordinary skill within the art to apply the teaching of *Wang et al.* for attaching a coil assembly to the teachings *Chapman* for a thin film slider to create the subject matter defined by appealed Claims 7 and 17.

B. The references

The primary reference, *Chapman*, has been previously discussed in relation to the rejection under the provisions of 35 U.S.C. §102(b). The appellants, for the sake of brevity, refer to the previous discussion of primary reference, *Chapman*, that was made in this brief and contained in the discussion related to the rejection under the provisions of 35 U.S.C. §102(b). Briefly stated, *Chapman* teaches that the air bearing layer and head elements are deposited on a first substrate wafer to which a slider body wafer is attached. The first substrate is then etched away to expose the air bearing surface (see Process Approach on page 3686). It should be pointed out that *Chapman* does not pertain to magneto-optical heads that are used within magneto-optical systems. There is no disclosure, suggestion or any motivation provided by *Chapman* that would indicate to a person skilled in the art that the process taught by *Chapman* could be used to form a magnetic coil close near the air bearing surface. *Chapman* does not mention forming a magnetic coil at a side of a substrate. In fact, there is no mention of magnetic coils at all within the four corners of *Chapman*. There is a singular mention of a coil in the illustration provided by Figure 7 of *Chapman*. The appellants respectfully point out that this single illustration of a coil does not provide any indication of the type of coil shown in Figure 7. Neither does *Chapman* disclose or suggest how the coil illustrated in Figure 7 is formed.

Crue et al. teach a thin film write head forming having a resistance (conductor) coil that is recessed within the an insulation layer (see col. 1, lines 46-54 and col. 3, lines 8-15). Note that the coil formed by *Crue et al.* is not a magnetic coil but is instead a resistance coil formed of a conductive material (col. 3, lines 17-35). *Crue et al.* clearly illustrate that the coil 140, as disclosed therein, is not formed at the surface (see Figures 1 through 3). *Crue et al.* teach

that conductors adjacent the resistance coil 140 can be recessed to sink heat generated by the coil 140 (see col. 4, lines 36-41). The appellants, respectfully, point out that neither the coil nor the heat sink taught by *Crue et al.* is formed at or near the surface of a substrate.

Wang et al. teach a coil assembly that is mounted onto a slider (see col. 1, lines 60-63). The coil assembly taught by *Wang et al.* is affixed to the slider assembly and not formed with the slider assembly but rather is attached to the slider assembly. An example of the attachment of the coil assembly to the slider as taught by *Wang et al.* is given at col. 2, lines 40-43, wherein *Wang et al.* states that coil assembly is affixed to the slider in a manner similar to a Winchester disk drive. Another embodiment of *Wang et al.* describes the coil as being surface mounted to the slider (see col. 6, lines 58-65). The appellants, respectfully, point out that *Wang et al.* do not discuss, teach or mention in any way that the coil as taught therein can be formed as an integral part of slider rather than being mounted to the slider.

C. The differences between the invention and the references

The examiner states that *Chapman* teaches the elements of appealed Claims 8 and 16 except for the heat sink layer. The examiner's position stated in the Final Office Action is that *Crue et al.* teach a heat sink layer as recited by appealed Claim 8 and 16 at col. 4, lines 36-39.

Appealed Claim 8 defines the subject matter of Claim 5 and further defines subject matter for forming a heat sink layer is formed beside the magnetic coil. The subject matter defined by appealed Claim 5 is for the magnetic coil to be formed at a surface of the substrate. Appealed Claim 8 further defines subject matter for a heat sink layer to be formed beside the magnetic coil, defined that the heat sink layer is also formed at a surface of the substrate. The coil formed by *Crue et al.* is not formed at the surface (see Figures 1 through 3). *Crue et al.* teach that conductors adjacent the resistance coil 140 can be recessed to sink heat generated by the coil 140 (see col. 4, lines 36-41). The appellants, respectfully, point out that neither the coil nor the heat sink taught by *Crue et al.* is formed at or near the surface of a substrate. Accordingly, the subject matter defined by appealed Claim 8 is not found by the combination made in the Final Office Action.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The appellants respectfully point out that the combination of *Chapman* teaches with *Crue et al.* does not address all the subject matter defined by appealed Claim 8, specifically, neither the coil nor the heat sink taught by *Crue et al.* is formed at or near the surface of a substrate.

Appealed Claim 16 defines the subject matter defined by Claim 13 and further defines that during forming of the magnetic coil a heat sink layer is formed beside the magnetic coil. The subject matter defined by appealed Claim 13 is for the magnetic coil to be formed at a surface of the substrate. Appealed Claim 16 further defines subject matter for a heat sink layer to be formed beside the magnetic coil, defined that the heat sink layer is also formed at a surface of the substrate. Note that the features of appealed Claim 16 are exposed at the face. The coil formed by *Crue et al.* is not formed at the surface (see Figures 1 through 3). *Crue et al.* teach that conductors adjacent the resistance coil 140 can be recessed to sink heat generated by the coil 140 (see col. 4, lines 36-41). The appellants, respectfully, point out that neither the coil nor the heat sink taught by *Crue et al.* is formed at or near the surface of a substrate. Accordingly, the subject matter defined by appealed Claim 16 is not found by the combination made in the Final Office Action.

The examiner states that *Chapman* teaches the elements of appealed Claims 9 and 17 except for the structure of the coil and that *Wang et al.* discloses the structure of the coil. The Appellants, respectfully, disagree with this assertion contained in the Final Office Action. The teachings of *Wang et al.* relate to a coil assembly 12 that is mounted onto a slider 14.

Appealed Claim 9 defines the subject matter of Claim 5 and further defines a stack of interconnected coil layers is formed to create the magnetic coil. The appellants would like to, respectfully point out that *Wang et al.* is illustrative of the prior art problem that is solved by the present invention (e.g. see page 2, lines 21-25 of the specification to the present invention, wherein the problems associated with forming a “ditch” to place the coil in are discussed). The recited magnetic coil, as previously stated, is formed at the surface of the first substrate. *Wang et al.* clearly describes the independent formation of a coil to be placed on the slider afterwards and does not pertain to the formation of a slider with the coil formed on the slider. Neither *Chapman*

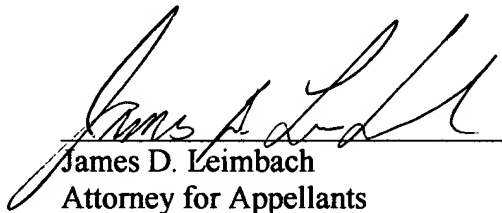
nor *Wang et al.* disclose the formation of a coil at the air bearing surface as recited by appealed Claim 9.

Appealed Claim 17 defines the subject matter of Claim 13 and further defines a stack of interconnected coil layers is formed to create the magnetic coil. Claim 13 defines that the coil is formed at an edge of the substrate and exposed at the face. *Wang et al.* does not form a magnetic coil in the manufacturing of the slider but instead placed the coil on the slider at a later point in time as previously discussed. The magnetic coil defined by appealed Claim 17 is formed at the surface of the first substrate. *Wang et al.* clearly describes the independent formation of a coil to be placed on the slider afterwards and does not pertain to the formation of a slider with the coil formed on the slider. Neither *Chapman* nor *Wang et al.* disclose the formation of a coil at the air bearing surface as recited by appealed Claim 17.

III. Conclusion

In summary, the Examiner's rejections of the claims are believed to be in error for the reasons explained above. The rejections of each of claims 1-20 should be reversed.

Respectfully submitted,


James D. Leimbach
Attorney for Appellants
Registration No. 34,374

Telephone: 585-381-9983
Facsimile: 585-381-9983

APPENDIX 1. Claims on Appeal

1. A method of manufacturing a magnetic head having a head face and including a magnetic coil which extends parallel to the head face, in which method the magnetic coil is formed at a first side of a first substrate, whereafter the first substrate provided with the magnetic coil is adhered with its first side to a side of a second substrate, whereafter material of the first substrate is removed from a second side of the first substrate, which second side is turned away from the first side, to form the head face.
2. A method as claimed in Claim 1, wherein a substrate of silicon provided with a top layer of an insulating material is used as the first substrate, the top layer being adjacent to the first side.
3. A method as claimed in Claim 2, wherein after a step involving the forming of a layer of a metal on the first substrate, at least one further step involving the forming of a layer of a non-conducting material and the forming of a further layer of a metal and the forming of interconnections between two neighboring layers of metal is performed to create the magnetic coil.
4. A method as claimed in Claim 1, wherein a substrate of a glass material is used as the second substrate.
5. A method of manufacturing a slider having an air bearing surface and including a planar magnetic coil which extends parallel to the air bearing surface, in which method the magnetic coil is formed at a first side of a first substrate, whereafter the first substrate is adhered with its first side to a side of a second substrate, whereafter material of the first substrate is removed from a second side of the first substrate, which second side is turned away from the first side, in order to form a face, whereafter this face is structured to form the air bearing surface.
6. A method as claimed in Claim 5, wherein on a silicon substrate a top layer of an insulation material is provided in order to form the first substrate, the top layer being adjacent to the first

side, wherein a substrate of glass is used as the second substrate, and wherein the silicon substrate is removed after adhering of the first substrate to the second substrate.

7. A method as claimed in Claim 5, wherein during forming of the magnetic coil a metallic layer is formed beside the magnetic coil, which metallic layer is at least partly removed to form a recess during structuring of the face to form the air bearing surface.

8. A method as claimed in Claim 5, wherein during forming of the magnetic coil a heat sink layer is formed beside the magnetic coil in the making.

9. A method as claimed in Claim 5, wherein a stack of interconnected coil layers is formed to create the magnetic coil.

10. A slider manufactured by the method as claimed in Claim 5.

11. A slider as claimed in Claim 10, wherein the top layer forms a protective layer for the slider.

12. A system for magnetically or magneto-optically recording information into a storage medium, the system including the slider as claimed in Claim 10.

13. A method of manufacturing a slider having an air bearing surface with a magnetic coil near the air bearing surface comprising the steps of:

forming the slider and the magnetic coil at a first side of a first substrate;

adhering the first side of the first substrate to a side of a second substrate;

removing material from a second side of the first substrate, wherein the second side is turned away from the first side, until features of the slider and the magnetic coil are exposed thereby forming a face.

14. A method as claimed in Claim 13, wherein the step of forming further comprises forming on a silicon substrate a top layer of an insulation material is provided in order to form the first substrate, the top layer being adjacent to the first side, wherein a substrate of glass is used as the

second substrate, and wherein the silicon substrate is removed by the step of removing after adhering of the first substrate to the second substrate.

15. A method as claimed in Claim 13, wherein during forming of the magnetic coil a metallic layer is formed beside the magnetic coil, which metallic layer is at least partly removed to form a recess during structuring of the face to form an air bearing surface.

16. A method as claimed in Claim 13, wherein during forming of the magnetic coil a heat sink layer is formed beside the magnetic coil.

17. A method as claimed in Claim 13, wherein a stack of interconnected coil layers is formed to create the magnetic coil.

18. A slider manufactured by the method as claimed in Claim 14.

19. A slider as claimed in Claim 18, wherein the top layer forms a protective layer for the slider.

20. A system for magnetically or magneto-optically recording information into a storage medium, the system including the slider as claimed in Claim 19.